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UTILIZATION OF AI FOR IMPROVING SERVICE QUALITY AND USER SATISFACTION IN EKITI STATE UNIVERSITY LIBRARY

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Abstract

This study examined the adoption of Artificial Intelligence (AI) and its impact on user satisfaction in Ekiti State University Library. The population of the study comprised of undergraduate students of the Department of Guidance and counselling in the Faculty of Education. The total population of the student for this study was 196 students. The study uses non probability sampling to select total of fifty respondents. Findings revealed that AI adoption in the university library is still at an early stage, with chat gpt is the most commonly used AI tools in Ekiti state university library, and that AI has improved the retrieval of information resources and that users are satisfied with AI enhanced services in Ekiti state University Library However, challenges such as lack of user training, technical issues, and limited funding hinder full AI integration The study recommends investment in AI Infrastructure by the University management, Adequate Training to increase awareness and Utilization, Provision of adequate funds by the University management to enable I.T Infrastructural upgrades and collaboration with other institutions and AI experts to share best practices.

Key Words: Artificial Intelligence, Library, User, Satisfaction

Introduction

Libraries have always been central to managing and disseminating knowledge, serving as pillars for academic, social, and cultural development. In recent decades, libraries have undergone significant transformations driven by technologies such as Artificial Intelligence (AI). The integration of AI into library operations marks a new era, enabling libraries to meet users' evolving needs in a digital world. AI applications in library systems span cataloging, indexing, reference services, and information retrieval (Isaiah, 2024). AI-driven systems can understand, predict, and respond to users' informational needs, optimizing service delivery and improving

accessibility. AI also facilitates digital resource management, personalized recommendations, and efficient search functionalities (Yusuf et al., 2022).

In Nigerian academic libraries, AI integration is emerging. Okpokwasili (2024) notes that tools such as expert systems, natural language processing (NLP), and robotic indexing can transform library services. Challenges, however, include financial constraints, lack of technical skills, and resistance to change. These challenges call for strategic support to encourage broader AI adoption.

User satisfaction measures how well services meet or exceed expectations. In libraries, this includes resource adequacy, ease of access, and service quality (Iwhiwhu & Okorodudu, 2012). AI can enhance satisfaction by streamlining operations and improving service delivery. The Service Quality Theory by Parasuraman, Zeithaml, and Berry, particularly the SERVQUAL model, evaluates service quality across tangibility, reliability, responsiveness, assurance, and empathy. This model is highly relevant in the library context. Ekiti State University (EKSU), Ado-Ekiti, Nigeria, is a state-owned institution founded in 1982. The EKSU Library offers physical and digital resources to support academic and research efforts. This study assesses the adoption and utilization of AI in improving library services and user satisfaction.

Research Questions

1. What types of AI technologies are currently in use in the Ekiti State University Library?
2. What are the roles of Artificial Intelligence in the library operations?
3. What are the contributions of AI to improving service quality and user satisfaction in Ekiti state University?
4. What is the Level of User Satisfaction Regarding AI-enhanced Library Services?
5. What are the challenges faced by library users in utilizing AI technologies?

Review of Literature

Descriptive literature review (the abstract section of the source papers) and integrative literature reviews (reference the conclusion) was used to review the literature from the year 2022- 2025, AI adoption to Academic library is a new concept, which limits the review of literature to the specific years indicated above. Yusuf et al (2022) emphasized the evolving role

of AI in Nigerian academic libraries, they emphasized that AI adoption requires policy frameworks, digital infrastructure, human capital development, and data security. Challenges identified included high costs, lack of technical skills, fear of job loss, insufficient infrastructure, and unreliable power supply. Recommendations focused on government and university financial support and training initiatives to prepare librarians for AI integration in library operations and services.

Adebayo and Aina (2023) conducted a study on the awareness and utilization of AI among Nigerian academic librarians revealed a generally high awareness of AI tools such as ChatGPT but low adoption levels due to limited training and infrastructural deficits. Librarians expressed mixed feelings about AI adoption, with some reluctance attributed to fears of job displacement and lack of readiness. The research underscored the need for targeted capacity building and infrastructural investment to improve AI adoption and enhance service delivery.

Ajayi and Akwer (2024) surveyed of academic librarians in Southwestern Nigeria confirmed high awareness of AI applications including RFID, security scanning, MARC, and chatbots. Benefits of AI adoption included time-saving, automation of routine tasks, and enhanced security through technologies like face recognition. However, barriers such as technical knowledge gaps and infrastructural limitations persisted, constraining full AI integration.

Ogunmode (2025) in a recent continues to stress the importance of policy documents, digital infrastructure, human capital development, and data security for successful AI adoption in Nigerian academic libraries, he further reiterated that challenges hampering adoption in Nigerian Academic Libraries include high implementation costs, shortage of technical skills, and poor infrastructure. To overcome these, studies advocate for adequate funding, continuous training, and capacity building to improve AI adoption and ultimately enhance user satisfaction in academic libraries. This literature review demonstrates a progressive increase in AI adoption and awareness in Nigerian academic libraries, but factored in challenges, While AI promises enhanced service quality and user satisfaction through automation and personalized services, infrastructural, ethical, and training challenges remain significant barriers to full implementation.

Addressing these challenges is critical for maximizing AI's benefits in Nigerian academic libraries.

Methods

The descriptive survey design was adopted for this study. Akuezuilo and Agu (2003) defines descriptive survey as a type of research design that describes the characteristics of the population or phenomenon that is being studied. Hence. It is appropriate for the study because it helps answer the questions relating to the adoption of artificial intelligence in library and user satisfaction in Ekiti State University library. The study use non probability to select Twenty-five (25) 200 level and twenty-five (25) 300 level of Guidance and counselling students to serve as respondents for this study making the total number of fifty (50) students, out of total population of 196 students, the instrument for Data collection was questionnaire, The collected data were coded, arranged and analyzed using simple statistical tools like frequency counts and percentage.

Findings and Discussion

Table 1: Gender of the Respondents

Gender	Frequency	Percentage (%)
Male	18	36.0
Female	32	64.0
Total	**50**	**100.0**

Source: Field Survey, 2025.

The analysis shows that 18 (36%) respondents were male, while 32 (64%) were female. This suggests that females constituted the majority of participants. This aligns with the findings of Isaiah & Juliet (2020), who observed that more females tend to engage in academic library services.

Table 2: Age of the Respondents

Age	No of Respondent	Percentage (%)

Below 20 Years	16	32.0
20 -25 years	23	46.0
26-30 years	11	22.0
31-35 years	0	0.0
Total	**50**	**100.0**

Source: Field Survey, 2025.

The majority of respondents (46%) were within the 20–25-year age range, followed by those below 20 years (32%). This indicates that the majority of library users in Ekiti State University Library are young adults, which aligns with the university's student demographics (Okpokwasili, 2024).

Table 3: Level of the Respondent

Level	No of Respondent	Percentage (%)
200 Level	18	36.0
300 Level	32	64.0
Total	**50**	**100.0**

Source: Field Survey, 2025.

Table 4.3 indicates that the 300 level students had the highest number of respondents, this might be because age and understanding capacity, the higher the level, the more capability (Shehu, Singh and Ochepa 2020).

Research Question One: What Types of AI Technologies are Currently in Use in Ekiti State University Library?

Table 4: Types of AI Technologies currently in Use in Ekiti State University Library

S/N	Items	YES	NO

		f	%	*f*	%
1.	ChatGPT	13	26.0	37	74.0
2.	Chatbot	8	16.0	42	84.0
3.	Robotics	4	8.0	46	92.0
4.	Machine Learning	15	30.0	35	70.0
5.	Metal AI	7	14.0	43	86.0
6.	Natural Language Processing	10	20.0	40	80.0
7.	Recommendation Systems	7	14.0	43	86.0

Source: Field Survey, 2025

The table 4 reflects the extent to which these AI technologies are being adopted and utilized within the university library. Findings indicate that ChatGPT (26%), Machine Learning (30%), and Natural Language Processing (20%) are among the AI technologies currently in use. These results suggest that while AI is being adopted, its implementation is still limited. Yusuf et al. (2022) highlight that AI adoption in libraries can significantly enhance service efficiency and accessibility. However, the low usage of some AI tools, such as robotics (8%) and recommendation systems (14%), suggests that there is a need for more investment and awareness in AI-driven library services this is inline with the findings of Okpokwasili (2024) which emphasizes that libraries in developing countries face challenges in integrating AI due to financial constraints and technical expertise gaps.

Research Question Two: What are the Roles of Artificial Intelligence in the Library Operations?

Table 5: Roles of Artificial Intelligence in the Library Operations?

S/N	**Items**	**YES**		**NO**	
		f	%	*f*	%
1.	AI helps automate repetitive administrative tasks.	45	90.0	5	10.0
2.	AI enhances decision-making in library	29	58.0	21	42.0

	management.				
3.	AI supports better resource allocation and inventory management.	35	70.0	15	30.0
4.	AI-powered analytics assist in improving library services.	29	58.0	21	42.0
5.	AI-driven systems help monitor and optimize resource usage.	32	64.0	18	36.0

Source: Field Survey, 2025

Table 5 reveals that 90% of respondents agreed that AI helps automate administrative tasks, while 70% noted its role in inventory management. Additionally, 58% agreed that AI enhances decision-making in library management, and 64% indicated that AI-driven analytics improve service optimization. This corroborates the study by Okpokwasili (2024), which found that AI optimizes library operations by reducing manual workload and improving service efficiency. Sridevi & Shanmugam (2017) also highlight that AI-powered automation can free up human librarians to focus on more critical, user-centered services such as research assistance and personalized guidance.

Research Question Three: What are the Contributions of AI in Access and Retrieval of Library Resources?

Table 6: The Contribution of AI on Accessing and Retrieval of Library Resources?

S/N	**Items**	**YES**		**NO**	
		Ƒ	%	*f*	%
1.	AI has improved the speed of accessing library resources.	46	92.0	4	8.0
2.	AI-based systems enhance the accuracy of search results.	32	64.0	18	36.0
3.	Users find AI tools easier to navigate than traditional systems.	35	70.0	15	30.0
4.	AI enhances remote access to digital resources.	31	62.0	19	38.0
5.	AI-powered tools provide better recommendations for research materials.	33	66.0	17	34.0

Source: Field Survey, 2025

Table 6 reveal that 92% of respondents agreed that AI improves the speed of accessing library resources, and 64% confirmed that AI enhances search accuracy. Additionally, 70% of respondents found AI tools easier to navigate than traditional systems, while 62% agreed that AI enhances remote access to digital resources. These findings support the argument by Sridevi & Shanmugam (2017) that AI technologies streamline library operations and improve retrieval systems, leading to better user experiences. AI-powered tools such as search algorithms and recommendation engines reduce the time spent searching for relevant materials, ultimately increasing user satisfaction (Isaiah & Juliet, 2020).

Research Question Four: What is the Level of User Satisfaction Regarding AI-enhanced Library Services?

Table 7: Level of User Satisfaction regarding AI-enhanced Library Services

S/N	Items	HS		S		BS		NS	
		f	%	F	%	*f*	%	*f*	%
1.	AI-based question-answering systems for research queries	18	36.0	17	34.0	13	26.0	2	4.0
2.	AI-driven attendance monitoring for library events	17	34.0	16	32.0	10	20.0	7	14.0
3.	AI improves the ease of accessing resources in the library	18	36.0	15	30.0	10	20.0	7	14.0
4.	Virtual reality (VR) for immersive library navigation	19	38.0	13	26.0	10	20.0	8	16.0
5.	AI integration in the library to meet usersseers exp expectation	16	32.0	12	24.0	13	26.0	9	18.0

Source: Field Survey, 2025

Table 7 showed that a significant proportion of respondents (36%) reported high satisfaction with AI-powered question-answering systems, while 38% found virtual reality navigation beneficial. Furthermore, 32% of respondents indicated that AI integration met their expectations, though a notable 26% were unsure about its effectiveness. This suggests that while AI contributes positively to user experience, gaps in understanding and usability may impact satisfaction. Zeithaml & Bitner (2009) emphasize the importance of user-centered technological

advancements in libraries, stating that service quality influences user satisfaction. Yusuf et al. (2022) further note that continuous user education on AI tools can enhance user experience and engagement in digital library services.

Research Question Five: What are the Challenges Faced by Library Users in Utilizing AI Technologies?

Table 8: Challenges faced by Library Users in Utilizing AI Technologies

S/N	Items	YES		NO	
		Ƒ	%	*f*	%
1.	Users lack sufficient training in using AI-based tools effectively.	48	96.0	2	4.0
2.	Technical glitches in AI systems hinder accessibility.	49	98.0	1	2.0
3.	AI tools require regular updates and maintenance.	48	96.0	2	4.0
4.	Some users prefer traditional library services over AI.	42	84.0	8	16.0
5.	Limited funding affects AI adoption and expansion in the library.	39	78.0	11	22.0

Source: Field Survey, 2025

Table 8 indicates that 96% of respondents indicates lack of training as a major challenge, while 98% mentioned technical glitches. Additionally, 96% agreed that AI tools require regular updates, and 84% reported that some users still prefer traditional library services over AI. Limited funding was also highlighted as a challenge by 78% of respondents. These findings align with Asemi & Asemi (2018), who noted that successful AI adoption in libraries requires adequate training and infrastructure investment. Furthermore, Okpokwasili (2024) observed that financial constraints often hinder the full implementation of AI in Nigerian academic libraries. Addressing these challenges through funding initiatives and comprehensive AI training programs will be critical in ensuring effective AI utilization in library operations.

Recommendations

The benefits of AI adoption in the Ekiti State University Library are evident, gaps in implementation and user awareness remain, the management and LIS professionals at Ekiti state University should ensure that:

- ✓ Adequate training, should be organized for awareness and continuous utilization of AI tools
- ✓ Funds should be allocated by the management for continuous IT infrastructural upgrades to support AI, adoption and Implementation.
- ✓ LIS professionals in Ekiti state university should be tasked with continuous solving of IT related issues such as hardware, software and technical glitches.
- ✓ LIS Professionals at Ekiti state university should be tasked with continuous update and regular maintenance of AI tools.

Conclusion

AI is transforming library services by improving operational efficiency and user satisfaction. Despite the evident benefits in EKSU Library, implementation gaps persist. Addressing training needs, funding limitations, and technical challenges is critical for full AI integration. Libraries must adopt a user-centered approach to ensure AI tools are effectively leveraged.

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